

1/13

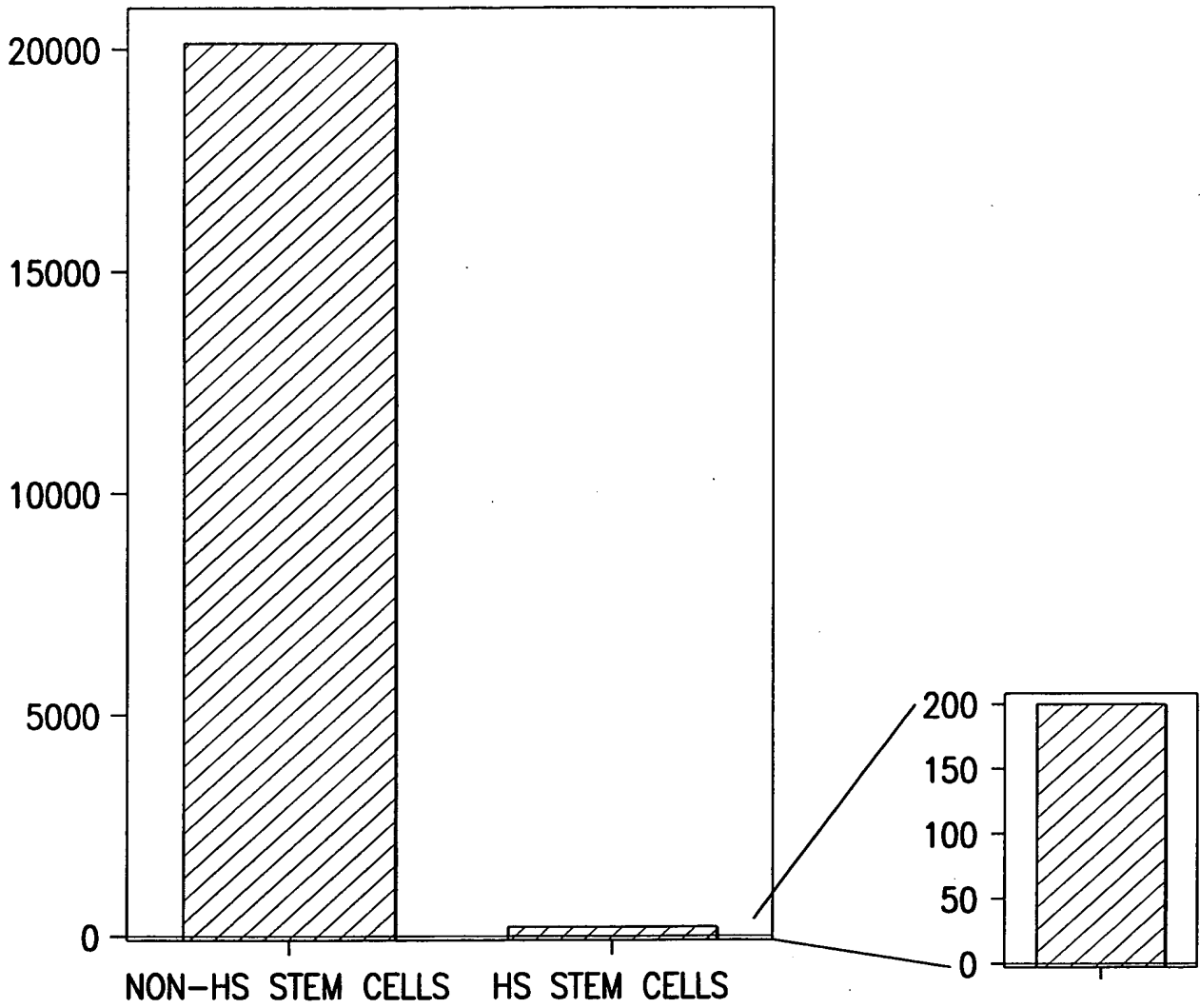


FIG.1

2/13

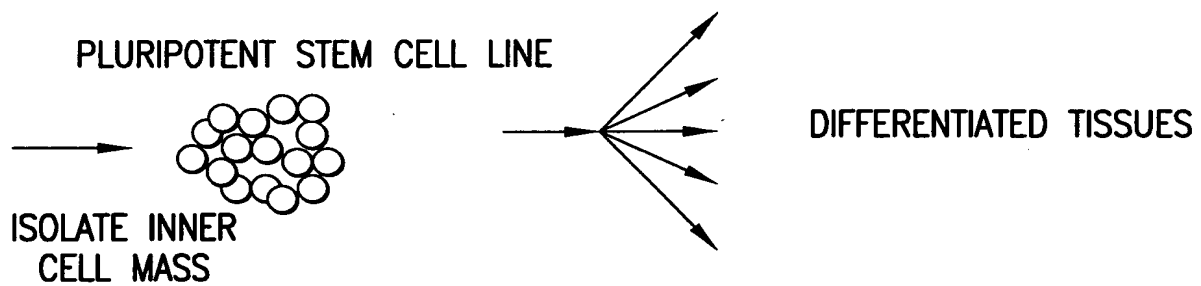
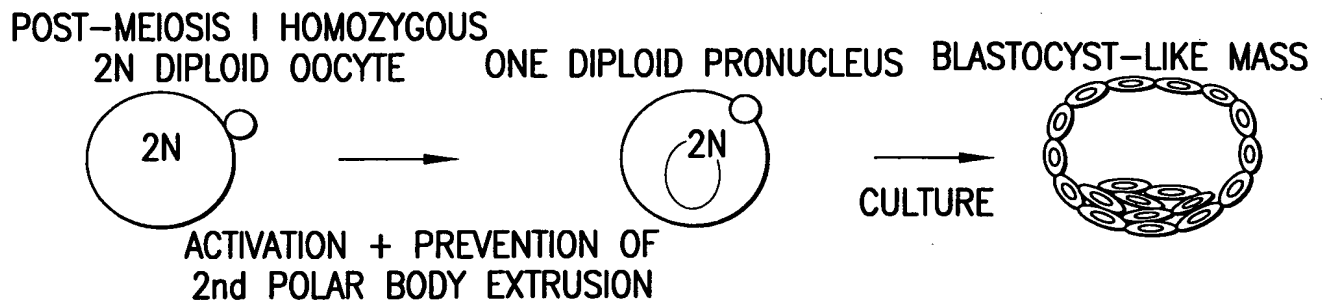


FIG.2

3/13

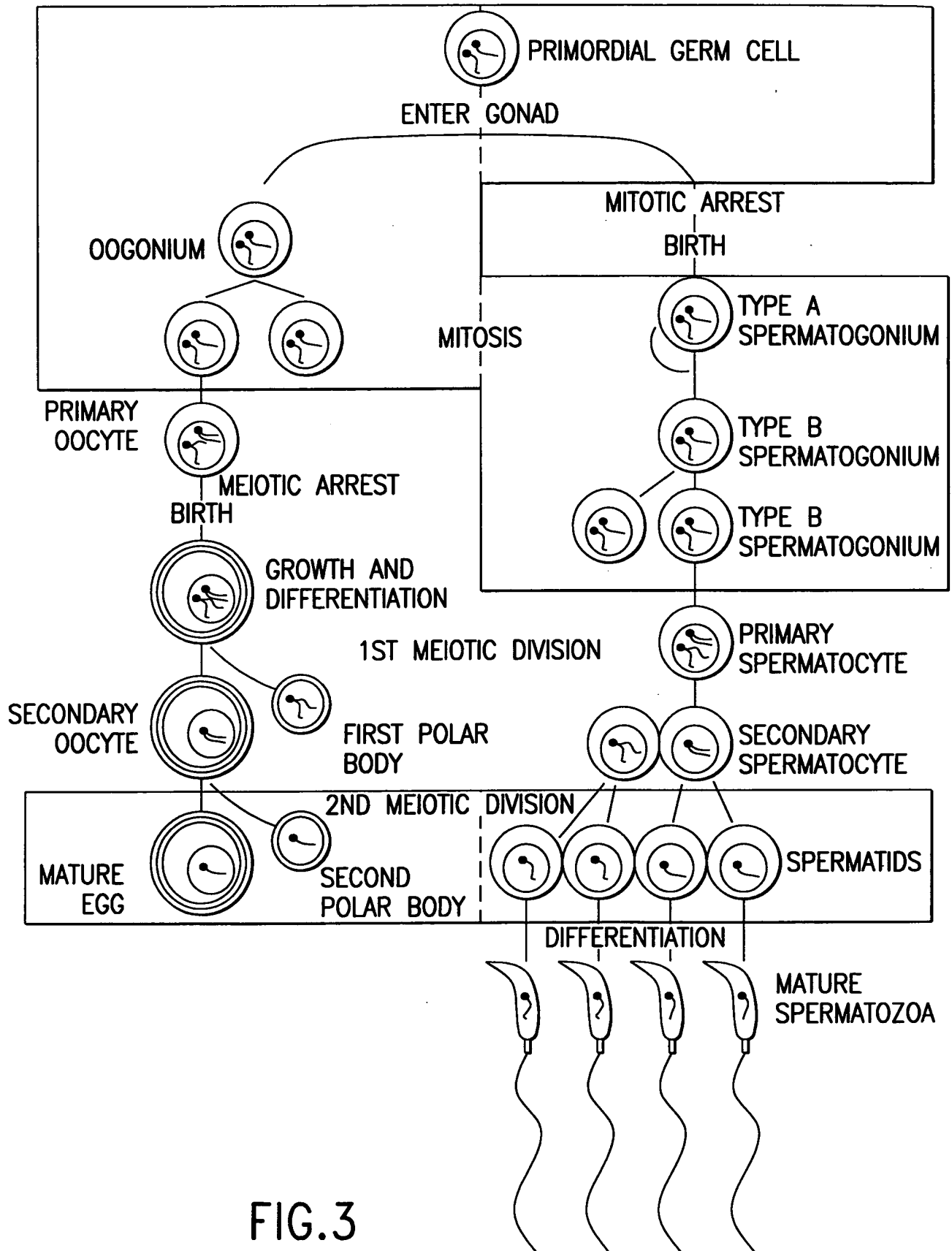


FIG.3

4/13

## Serological Specificities of the HLA-A, -B, and -C Loci

A locus	B locus	C locus
A1 <sup>a</sup>	B5	B50(21) <sup>a</sup>
A2 <sup>a</sup>	B7 <sup>a</sup>	B51(5) <sup>a</sup>
A203	B703	B5102
A210	B8 <sup>a</sup>	B5103
A3 <sup>a</sup>	B12	B52(5) <sup>a</sup>
A9	B13 <sup>a</sup>	B53 <sup>a</sup>
A10	B14 <sup>a</sup>	B54(22)
A11 <sup>a</sup>	B15	B55(22) <sup>a</sup>
A19	B16	B56(22) <sup>a</sup>
A23(9) <sup>a</sup>	B17	B57(17) <sup>a</sup>
A24(9) <sup>a</sup>	B18 <sup>a</sup>	B58(17) <sup>a</sup>
A2403	B21	B59
A25(10) <sup>a</sup>	B22	B60(40) <sup>a</sup>
A26(10) <sup>a</sup>	B27 <sup>a</sup>	B61(40) <sup>a</sup>
A28	B35 <sup>a</sup>	B62(15) <sup>a</sup>
A29(19) <sup>a</sup>	B37 <sup>a</sup>	B63(15) <sup>a</sup>
A30(19) <sup>a</sup>	B38(16) <sup>a</sup>	B64(14) <sup>a</sup>
A31(19) <sup>a</sup>	B39(16) <sup>a</sup>	B65(14) <sup>a</sup>
A32(19) <sup>a</sup>	B3901(16)	B67
A33(19) <sup>a</sup>	B3902(16)	B70 <sup>a</sup>
A34(10) <sup>a</sup>	B40	B71(70) <sup>a</sup>
A36	B4005	B72(70) <sup>a</sup>
A43	B41 <sup>a</sup>	B73
A66	B42 <sup>a</sup>	B75(15)
A68(28) <sup>a</sup>	B44(12) <sup>a</sup>	B76(15)
A69(28) <sup>a</sup>	B45(12) <sup>a</sup>	B77(15)
A74(19)	B46	B7801
	B47 <sup>a</sup>	Bw4 <sup>a</sup>
	B48	Bw6 <sup>a</sup>
	B49(21) <sup>a</sup>	

<sup>a</sup> Serological specificities to be included in a screening panel.

FIG.4A

5/13

Officially Recognized HLA-DR and HLA-DQ,  
Specificities 1992<sup>3</sup>

DR1	DQ1
DR103	DQ2
DR2	DQ3
DR3	DQ4
DR4	DQ5(1)
DR5	DQ6(1)
DR6	DQ7(3)
DR7	DQ8(3)
DR8	
DR9	
DR10	
DR11(5)	
DR12(5)	
DR13(6)	
DR14(6)	
DR1403	
DR1404	
DR15(2)	
DR16(2)	
DR17(3)	
DR18(3)	
DR51	
DR52	
DR53	

(N) = the broad HLA-DR or HLA-DQ specificity

FIG.4B

6/13

# Restriction Endonucleases for Genotyping of DQA1, DQB1, DRB1, DRB3, DRB5, DPA1, and DPB1 Alleles

Allele	Antigen	Restriction endonucleases
DQA1		<i>Apa</i> I, <i>Hph</i> I, <i>Bsa</i> JI, <i>Fok</i> I, <i>Mbo</i> II, <i>Mn</i> II
DQB1	DQw1	<i>Fok</i> I, <i>Apa</i> I, <i>Hae</i> II, <i>Sfa</i> NI, <i>Bss</i> HII, <i>Hph</i> I
	DQw2,3,4	<i>Fok</i> I, <i>Bgl</i> I, <i>Sac</i> I, <i>Acy</i> I, <i>Hpa</i> II
DRB1	DR1	<i>Ava</i> II, <i>Pst</i> I
	DR2	<i>Fok</i> I, <i>Cfr</i> 13I, <i>Hph</i> I
	DR3,5,6,8	<i>Ava</i> II, <i>Fok</i> I, <i>Kpn</i> I, <i>Hae</i> II, <i>Cfr</i> 13I, <i>Sfa</i> NI, <i>Sac</i> II, <i>Bsa</i> JI, <i>Apa</i> I, <i>Hph</i> I, <i>Rsa</i> I
	DR4	<i>Sac</i> II, <i>Ava</i> II, <i>Hinf</i> I, <i>Hae</i> II, <i>Hph</i> I, <i>Mn</i> II
DRB3		<i>Hinf</i> I, <i>Kpn</i> I, <i>Hph</i> I
DRB5		<i>Sfa</i> NI, <i>Cfr</i> 13I
DPA1		<i>Alu</i> I, <i>Acy</i> I, <i>Mbo</i> II
DPB1		<i>Bsp</i> 1286I, <i>Fok</i> I, <i>Dde</i> I, <i>Bsa</i> JI, <i>Bss</i> HII, <i>Cfr</i> 13I, <i>Rsa</i> I, <i>Eco</i> NI, <i>Ava</i> II

## FIG.5

# List of SSOs for HLA Class II Oligotyping

## SSO Probes for HLA-DR Generic Typing

	Oligo seq 5' - 3'	AA	Specificity
L11	TTCAAACTTAAGCTGCCAC	9-14	DR1
D11	CTCATACTTATCCTGTGC	9-14	DR2
N77	TCTGCAGTAGTTGTCCACC	75-80	DR3
H33	CTCTTGGTGATAGAGTATC	29-53	DR4
E58	CCAGTACTCCTCATCAGGC	56-61	DR11
L37	AGCGCAGGAGCTCCTCTG	34-39	DR12
G11	CTTATACTTACCCCTGCCAC	9-14	DR7
L74	GTGTCCACCAGGGCCCGCC	71-77	DRS (+1403)
Y26	CTGTGCAGATACCGCACCC	23-29	DR9
V11	CTCAAACTTAACCTCCTCC	9-14	DR10
E71	GGCCCGCTCGTCTTCCAGG	68-73	DR13 (1301, 1302, 1304)
			DR1 (0103)
			DR4 (0402, 0414)
			DR11 (1102, 03)
K71	CGGCCCGCTTGTCTTCCAG	68-73	DR13-HAG (1303)
H60	GTTCCAGTGCTCCGCAGCA	57-62	DR14 (1401, 04, 07)
N37	AGCGCACGTTCTCCTCCTG	34-39	DR3
			DR13 (1301, 02, 04, 06)
			DR14 (1402, 03, 06)
D37	GAAGCGCAAGTCTCCTCTCT	34-40	DR2 (DRB5*0101)
AV86	GCTCTCCACAGCCCCGTAG	83-88	DR2 (DRB5*02)
			DR1 (0102)
			DR12

FIG.6A

# SSO Probes for the Analysis of DRB1, DRB3, DRB5 Subtypes

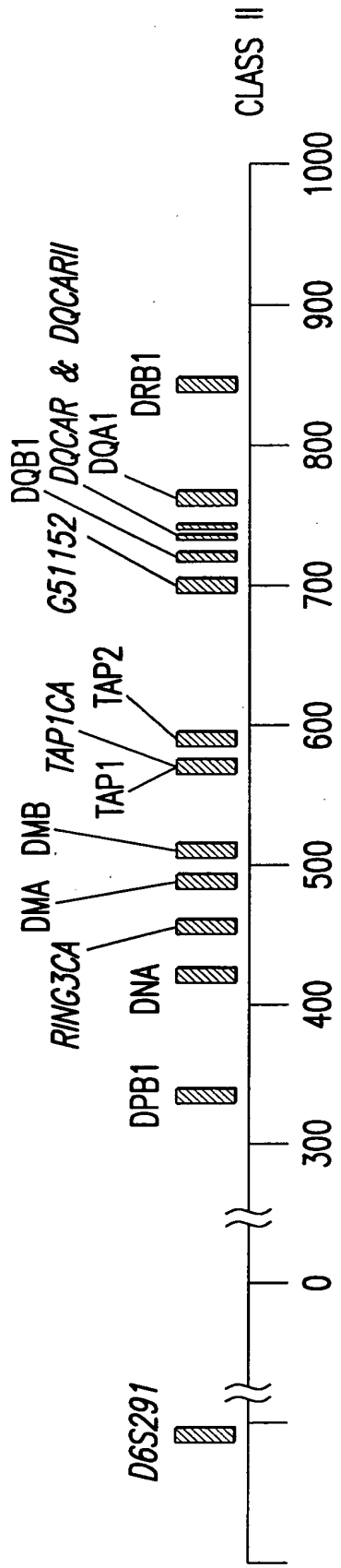
	Oligo seq 5' - 3'	AA	Specificity
G13	ACACTCACCCGTAGAGTAC	9-14	0801-0805, 1105, 1201, 1202, 1404
H30-2	ATAGAAGTGTCTGTCCAGG	27-32	1503
N37	AGCGACGTTCTCCTCCTG	34-39	0301, -02, 1301, 1302, 1305, 1306, 1402, 1403, 1406
S37	AGCGACGGACTCCTCTTG	34-39	0406
S57	GCCTAGCGCCGAGTACTG	56-61	0405, 0409 - 0412, 0801, 0803, 0805, 1303, 1304
H60	GTTCCAGTGTCCGCAGCA	57-62	1401, 1404, 1407
F67	CTTCCAGGAAGTCTTCTG	64-69	1601, 1101, 1103 - 1105, 1202, 1305
I67	CTTCCAGGATGCTTCTG	64-69	0803, 1102, 1201, 1301 - 1304, 1306, 0412
I67-2	ACATCCTGGAAGACGAGC	66-71	0103, 0402, 0414, 1102, 1301, 1302, 1304
E71	GGCCCGCTCGTCTTCCAGG	68-73	0103, 0402, 0414, 1102, 1103, 1301, 1302, 1304
K71	CGGCCCGCTTGTCTTCCAG	68-73	1303
QK71	CGGCCCGCTTGTCTCGAC	68-73	0401, 0409, 0413
QR71	CGCGGGCCCGCCTCTGCTC	69-74	0404, 0405, 0408, 0410 - 0411
QR71-2	CGGCCCGCCTCTGCTCCAG	68-73	0101, 0102, 0403 - 0408, 0410, 0411, 1402, 1406
R71	GGCCCGCCTGTCTTCCAGG	68-73	1101, 1104, 1105, 1305, 1306, 0801 - 0805, 1403, 0412
R71-2	CCGCGGCGCGCCTGTCTTC	69-74	1601, 1602, DRB5*0101, 0102
RR71	AGCGGAGGCGGGCCGAGG	69-74	1401, 1404, 1405, 1407 (DRB*0101)
E74	GTGTCCACCTCGGCCCGCC	71-77	0403, 0406, 0407, 0411, 1404, 1405, 1407
L74	GTGTCCACAGGGCCCGCC	71-77	0801 - 0805, 1403, 0412
V86	AACTACGGGTTGTGGAG	82-87	Val86
G86	AACTACGGGTTGGTGAG	82-87	Gly86
AV86	GCTCTCCACAGCCCCGTAG	83-88	0102, 1201, 1202
			DRB5*02

FIG.6B



Locus	5' Primer sequence	3' Primer sequence
D6S276	5-tcaatcaaatcatccccagaag	5-ccttctttgcagactgtcacc
D6S105	5-gggattacaggcaggagccac	5-gaaggagaattgtaattccg
MOGCA	5-gaaatgtgagaataaaggaga	5-gataaaggggaactactaca
D6S265	5-agtcaccctactgtgctatc	5-atcgaggtaaacagcagaaaag
MIB	5-gcttcacccgatcagtagaagac	5-gcatggtgtcagagatagtcaggtc
D6S275	5-ggagaagttgagtattttctgc	5-accaaacttcaaattttcgg
DQCAR11	5-gcactatcattaaatttgctttccacagtac	5-tgattcataaggcaagaatccagcatattgg
DQCAR	5-gaaacatatattaacagagacagacaaa	5-catttctcttcttatcacttcata
G51152	5-ggtaaaattcctgactggcc	5-gacagctcttcttaacctgc
TAP1CA	5-gctttgatctccccctc	5-ggacaataattttgctcctgagg
RING3CA	5-tgcttataggagactaccg	5-gaggtaatgtcacaggatggg
D6S291	5-ggcattcaggcatgcctggc	5-ggggatgacgaattattcactaact

FIG.7



10/13

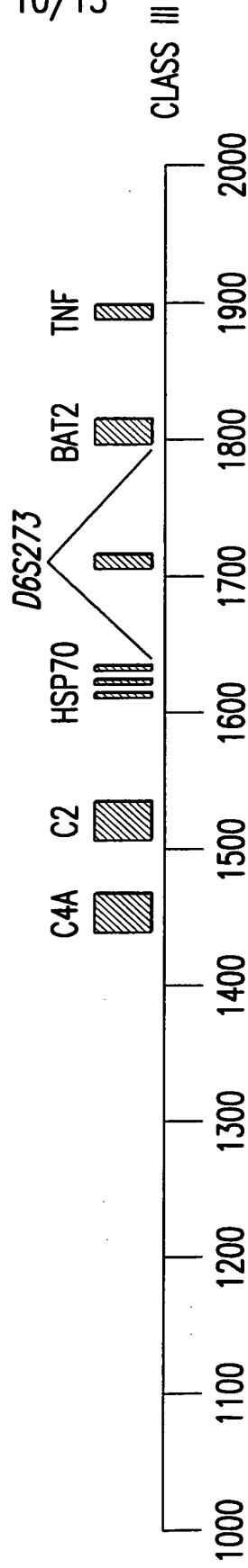


FIG.8

11/13



FIG. 9A

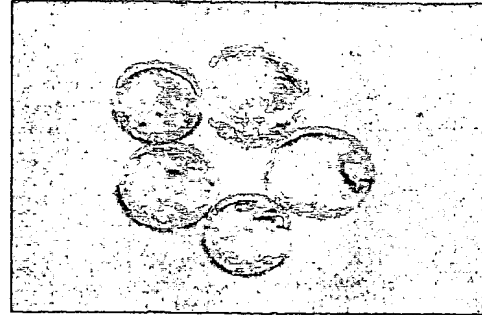


FIG. 9B

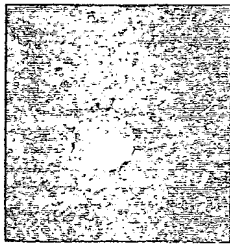


FIG. 9C

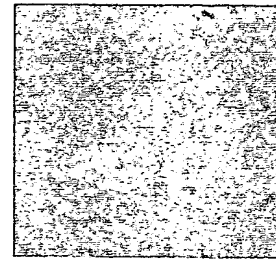


FIG. 9D

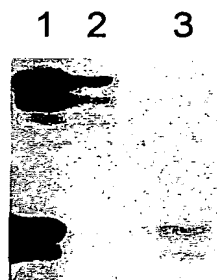


FIG. 9E

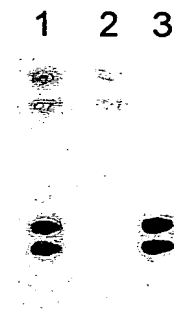


FIG. 9F

12/13

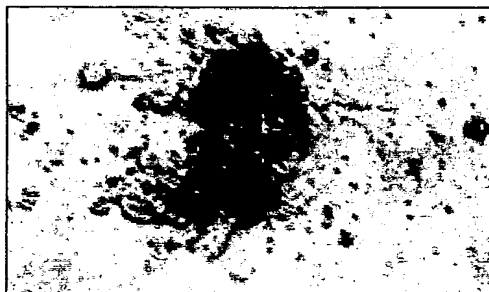


FIG.10A

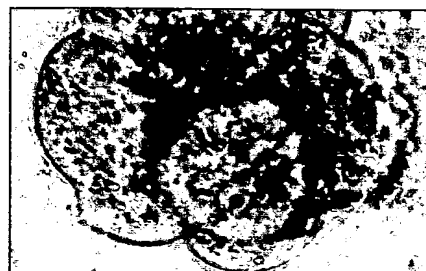


FIG.10B

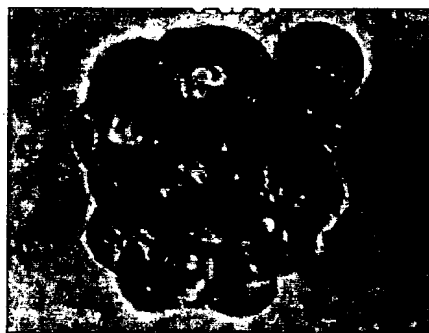


FIG.10C



FIG.10D

Gene		Primers	Sequences (5' to 3')	Den.	Ann.	Ext.
DQA1		5'Primer	GTGCTGCAGGTGTAACCTTGTAACAG	(242 bp)	94°C	72°C
		3'Primer	CACGGATCCGGTAGCAGCGGTAGAGTTG		62°C	
DQB1	For DQw1	5'Primer	GCATGTGCTACTTCACCAACG	(241 bp)	94°C	72°C
		3'Primer	CACCTGCAGATCCGCGGTACGCCACCTC		55°C	
	For DQw2	5'Primer	GCATGTGCTACTTCACCAACG	(237 bp)	94°C	72°C
	DQw3					
	DQw4	3'Primer	CACCTGCAGTCCGGAGCTCCAACCTGGTA			
DRB1	For DR2	5'Primer	TTCCTGTGGCAGCCTAAGAGG	(261 bp)	94°C	72°C
	For DR4	5'Primer	GTTTCTTGGAGCAGGTTAAAC	(263 bp)	94°C	72°C
	For DR9	5'Primer	GAAGCAGGATAAGTTTGAGTG	(256 bp)	94°C	72°C
	For DR1	5'Primer	GGTTGCTGGAAAGATGCATCT	(206 bp)	94°C	72°C
	For DR7	5'Primer	AGTTCCTGGAAAGACTCTTCT	(206 bp)	94°C	72°C
	For DR10	5'Primer	GGTTGCTGGAAAGACGCGTCC	(206 bp)	94°C	72°C
	For DR3	5'Primer	ACGTTTCTTGGAGTACTCTACG	(265 bp)	94°C	72°C
	DR5					
	DR6					
	DR8					
DRB3		3'Primer	CCGCTGCACCTGTGAAGCTCT			
		3'R (common for DRB1)				
		DRBAMP-52	CCCAGCACGTTTCTTGGAGCT	(271 bp)	94°C	72°C
		3'R	CCGCTGCACCTGTGAAGCTCT			
DRB5		5'Primer	CTTGCAGCAGGATAAGTAT	(259 bp)	94°C	72°C
		3'Primer	CCGCTGCACCTGTGAAGCTCT			
DPA1	For 3rd exon	5'Primer	GGAAGCTTGATCCCCCTGAGGTGACCG	(288 bp)	92°C	72°C
		3'Primer	GGGGATCCCCAGTCTTGAGGAGCGGC			
	For TM exon	5'Primer	GGAAGCTTGAGGCCCAAGAGCCAATCCA	(161 bp)		
		3'Primer	GGGGATCCGCCAGAACGCCAGAGACTT			
DPB1		5'Primer	GTGAAGCTTCCCCCGCAGAGAATTAC	(299 bp)	94°C	72°C
		3'Primer	CACCTGCAGTCACTCACCTCGGCGCTG			

FIG. 11

1003295 061002